

In re Appln. of Feussner et al.
Application No. Unassigned (U.S. National Phase of PCT/EP00/06539)

IN THE CLAIMS:

Please cancel claims 1-11.

Please add the following new claims:

12. (New) A method of enhancing the specificity of a plant lipoxygenase for position 11 of arachidonic acid comprising changing at least one amino acid in a wild type plant lipoxygenase, characterized in that the change takes place at position 576 of potato tuber lipoxygenase or at a corresponding position in a lipoxygenase of another plant species, whereupon the specificity of the plant lipoxygenase for position 11 of arachidonic acid is enhanced.

13. (New) The method according to claim 12, characterized in that the change at position 576 results in the presence of a Phe residue at position 576.

14. (New) The method according to claim 12, characterized in that the amino acid change is effected by directed mutagenesis.

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15. (New) The method according to claim 13, characterized in that the amino acid change is effected by directed mutagenesis.

16. (New) An isolated or purified lipoxygenase obtainable by the method of claim 12.

17. (New) An isolated or purified lipoxygenase obtainable by the method of claim 13.

18. (New) An isolated or purified nucleic acid encoding the lipoxygenase of claim 16.

19. (New) An isolated or purified nucleic acid encoding the lipoxygenase of claim 17.

20. (New) An isolated or purified vector comprising the nucleic acid of claim 18.

21. (New) An isolated or purified vector comprising the nucleic acid of claim 19.

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22. (New) A cell comprising the nucleic acid of claim 18 and/or a vector comprising said nucleic acid.

23. (New) A cell comprising the nucleic acid of claim 19 and/or a vector comprising said nucleic acid.

24. (New) A plant or a plant part comprising the cell of claim 22.

25. (New) A plant or a plant part comprising the cell of claim 23.

26. (New) A method for producing 11-perhydroxy arachidonic acid or the reduced 11-hydroxy derivative thereof comprising incubating arachidonic acid with the lipoxygenase of claim 16 under appropriate conditions, whereupon 11-perhydroxy arachidonic acid is obtained, and, optionally, reducing the 11-perhydroxy arachidonic acid, whereupon the reduced 11-hydroxy derivative thereof is obtained.

27. (New) A method for producing 11-perhydroxy arachidonic acid or the reduced 11-hydroxy derivative thereof comprising incubating arachidonic acid with the lipoxygenase of claim 17 under appropriate conditions, whereupon 11-perhydroxy arachidonic acid is obtained, and, optionally, reducing the 11-perhydroxy arachidonic acid, whereupon the reduced 11-hydroxy derivative thereof is obtained.

28. (New) An arachidonic acid derivative containing a hydroxy group at position 11.

IN THE ABSTRACT:

Replace the Abstract with:

A method for producing a plant lipoxygenase (LOX) with modified positional specificity toward arachidonic acid and its use for hydroperoxylation of arachidonic acid. The LOX makes it possible to produce for the first time (11S,14Z,12E,8Z,5Z)-11-hydroperoxy-14,12,8,5-eicosatetraenic acids on a large scale. To this end, arachidonic acid is incubated as substrate with the LOX under appropriate conditions. Hydroperoxylation of the arachidonic acid is then effected, preferably at position 11, with secondary products which are hydroperoxylated at position 8, at position 5, or at positions 11 and 8 and 5.